

$$F_{\nabla} = 2\pi \cdot r^3 \frac{\sqrt{\epsilon_B}}{c} \left( \frac{\epsilon - \epsilon_B}{\epsilon + 2\epsilon_B} \right) (\nabla \cdot I)$$

$F_{\nabla}$  = Optical force on particle towards higher intensity

$r$  = Radius of particle

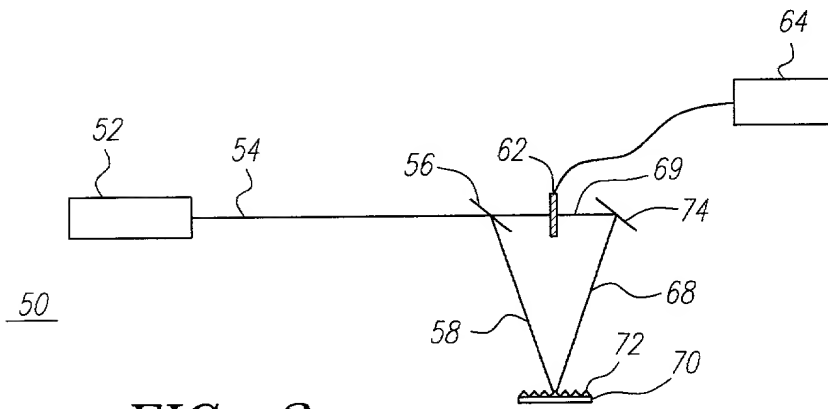
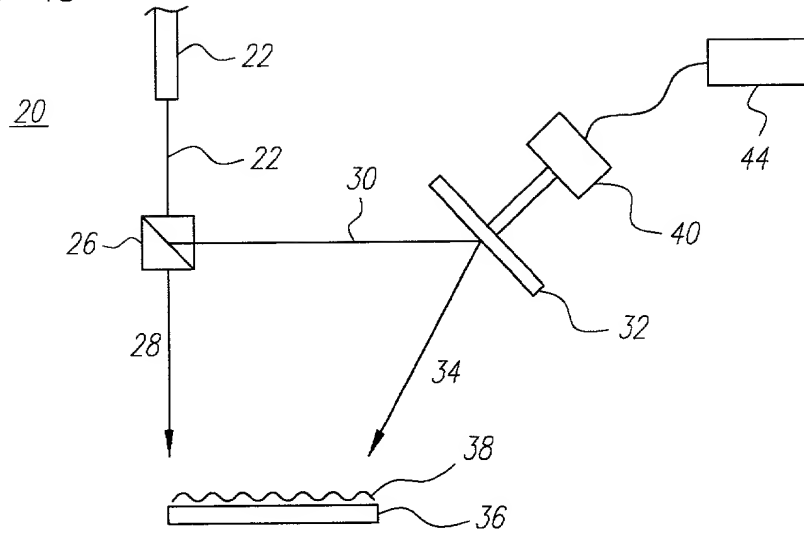
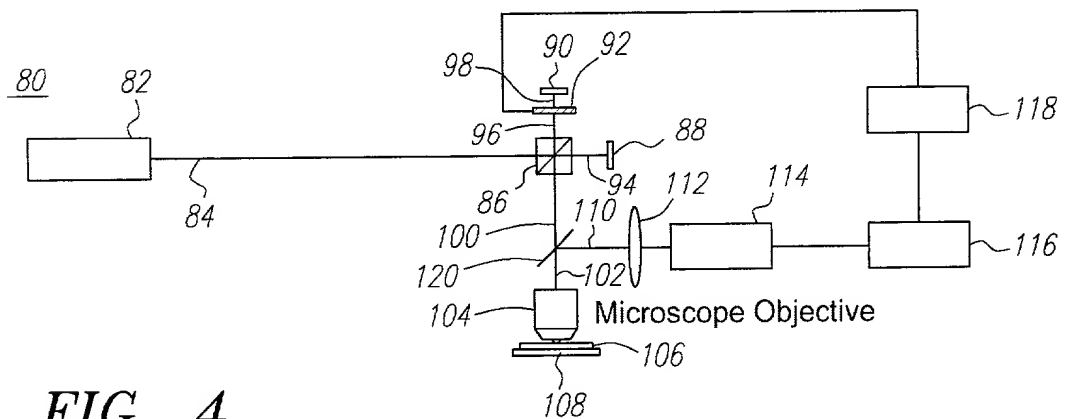
$\epsilon_B$  = Dielectric constant of background medium

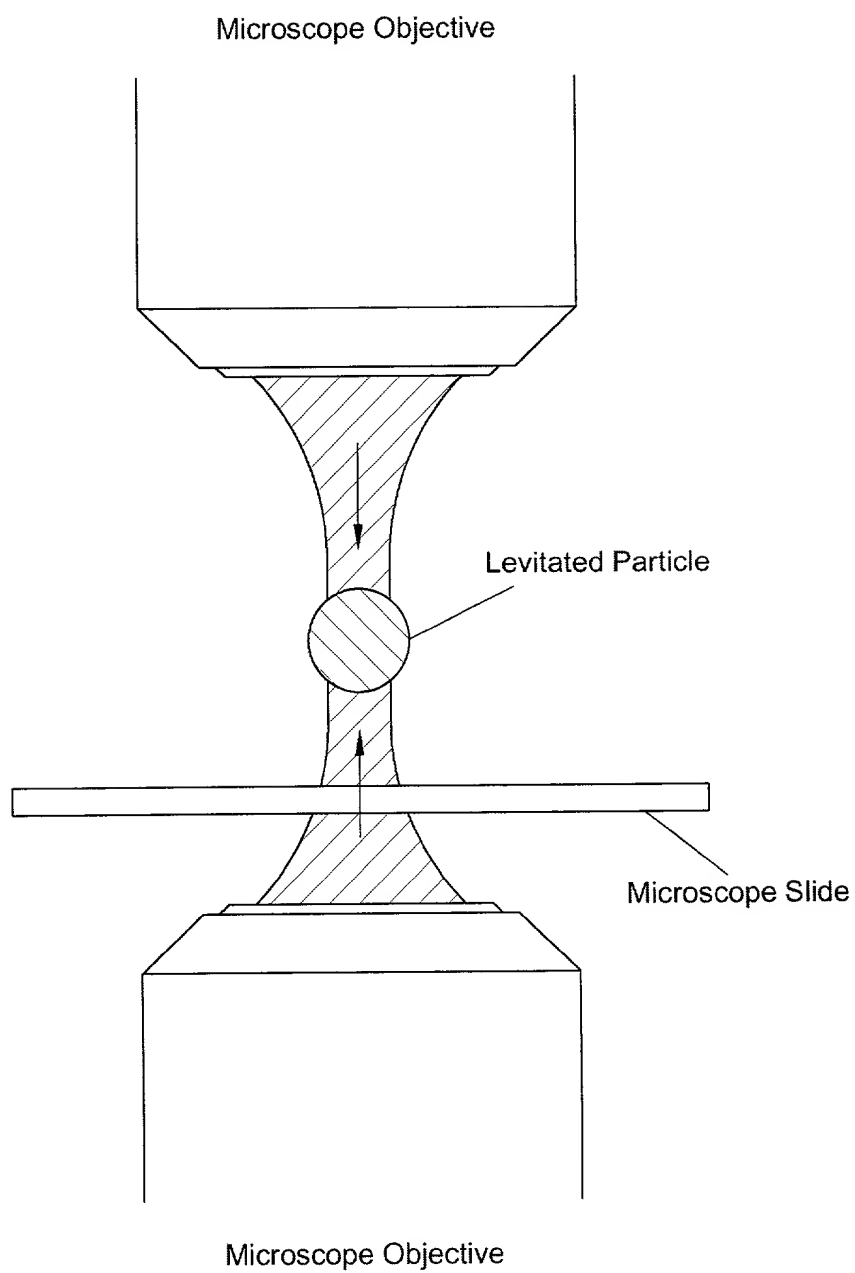
$\epsilon$  = Dielectric constant of particle

$I$  = Light intensity ( $\text{W}/\text{cm}^2$ )

$\nabla$  = Spatial derivative

**FIG. 1**

**FIG. 2****FIG. 3****FIG. 4**



*FIG. 4A*

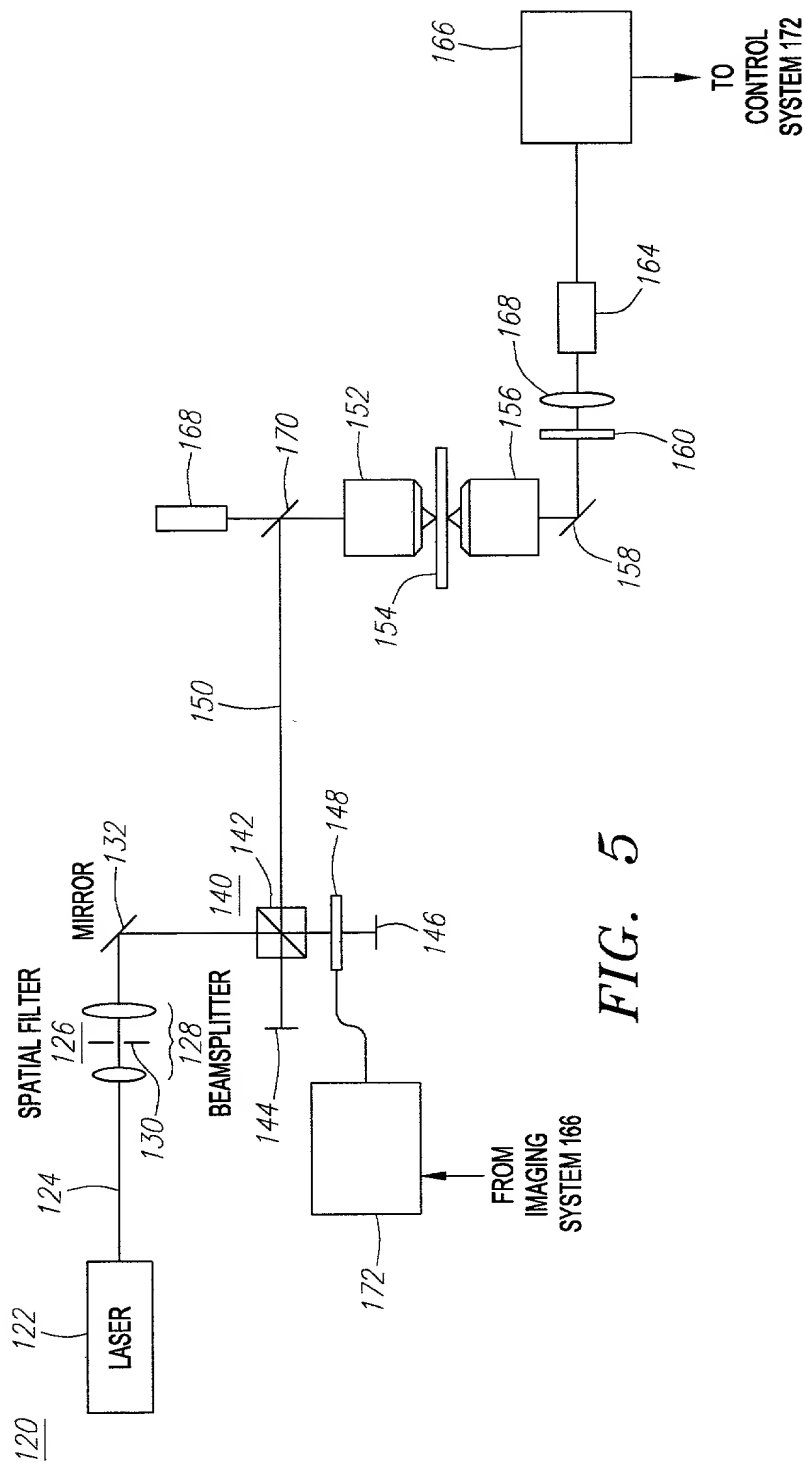


FIG. 5

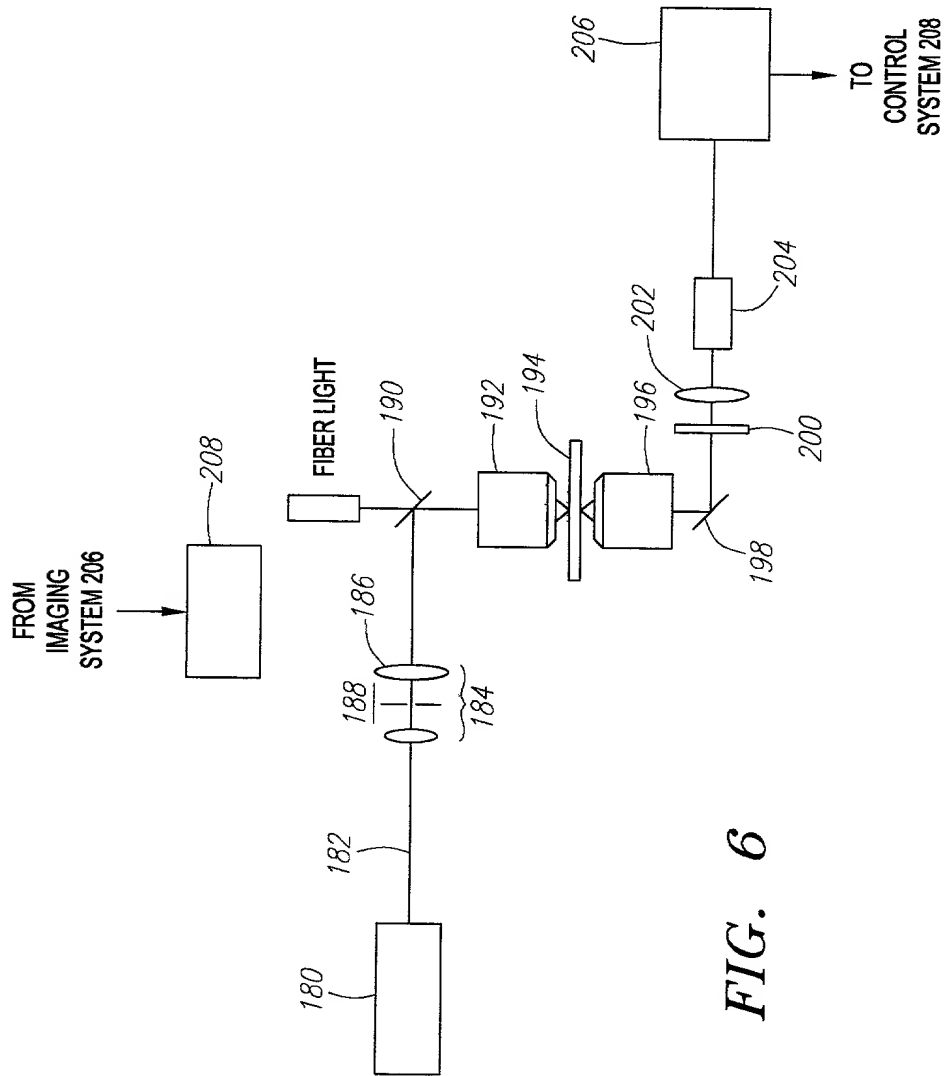
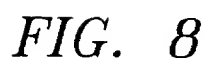
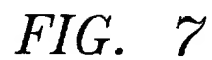
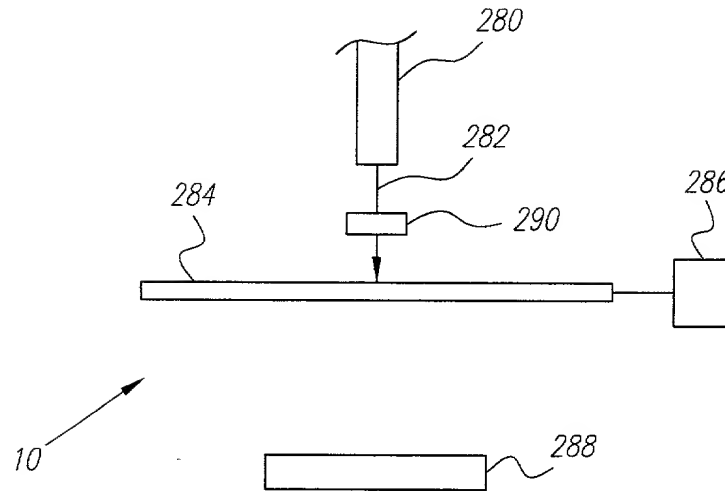
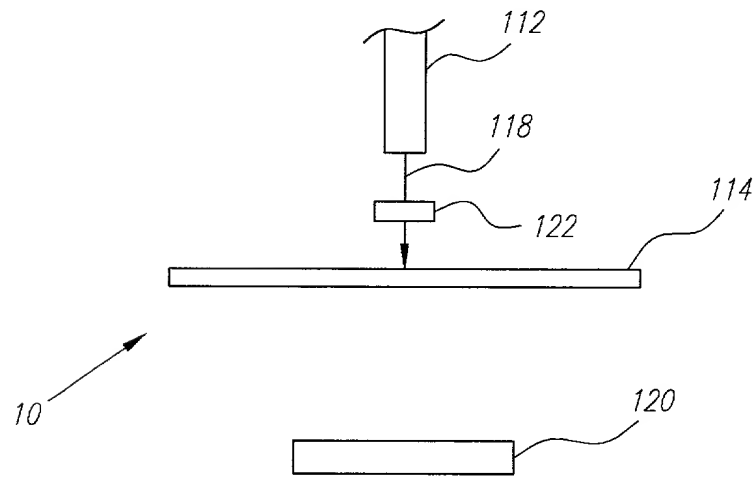


FIG. 6





**FIG. 9A**



**FIG. 9B**

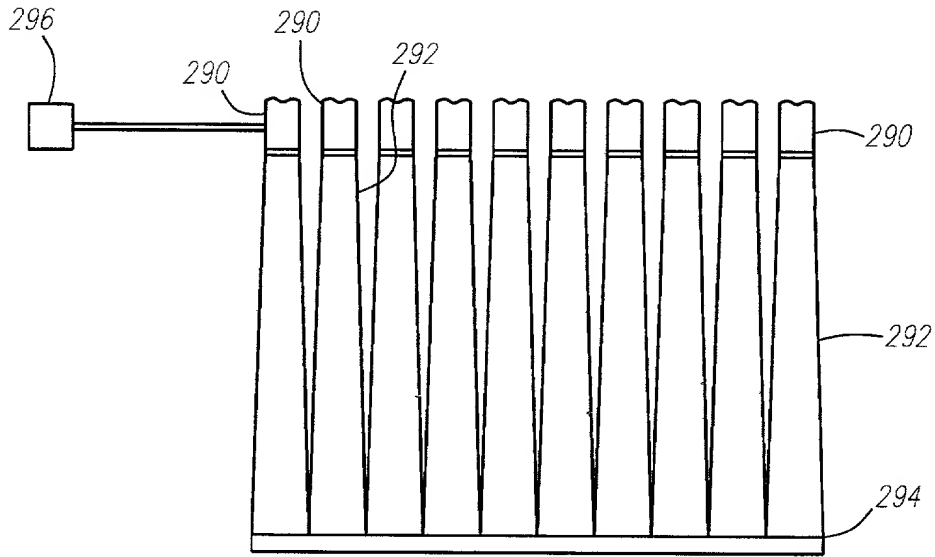
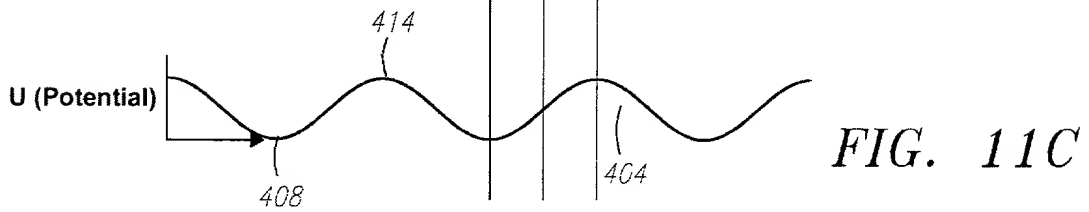
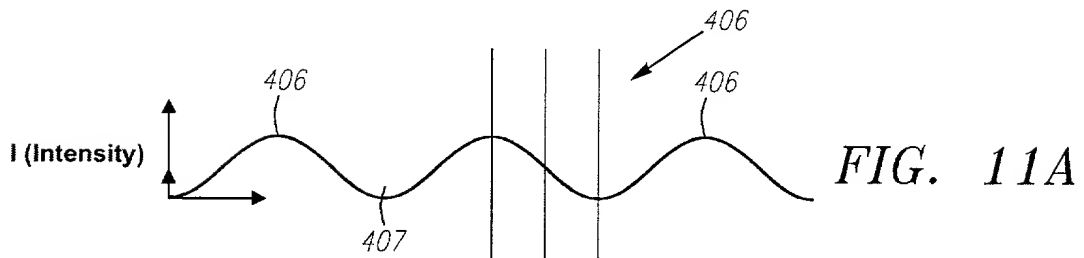


FIG. 10





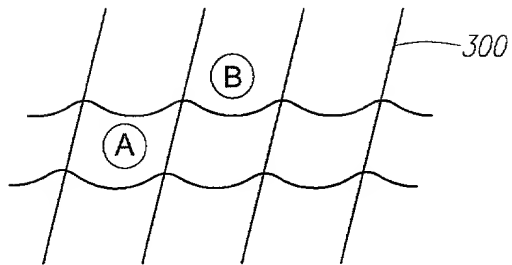


FIG. 12A

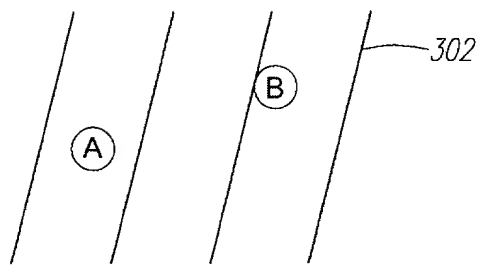


FIG. 12B

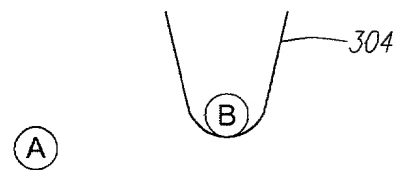


FIG. 12C

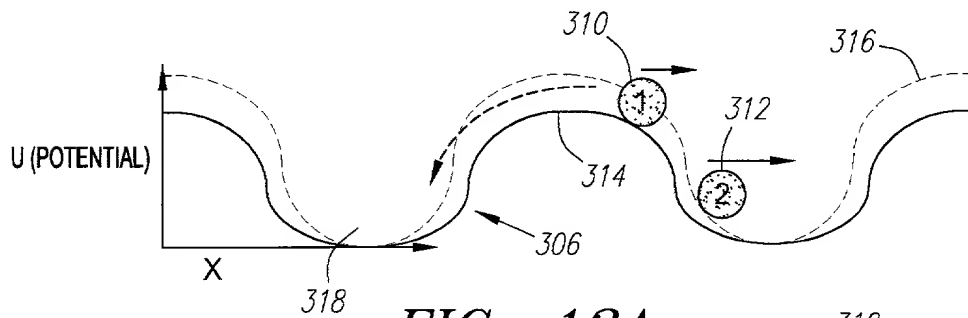


FIG. 13A

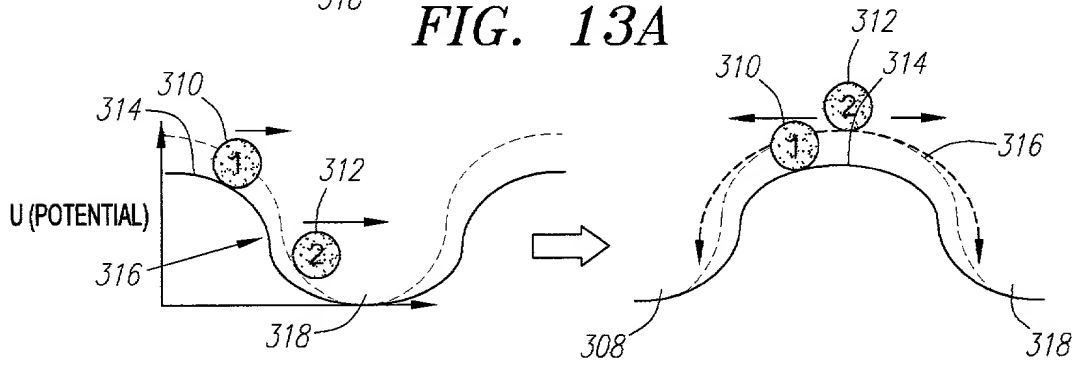


FIG. 13B

FIG. 13C

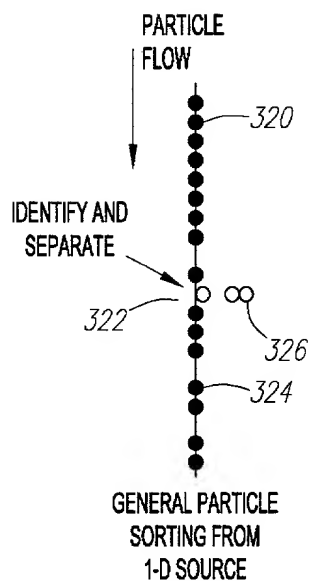


FIG. 14A

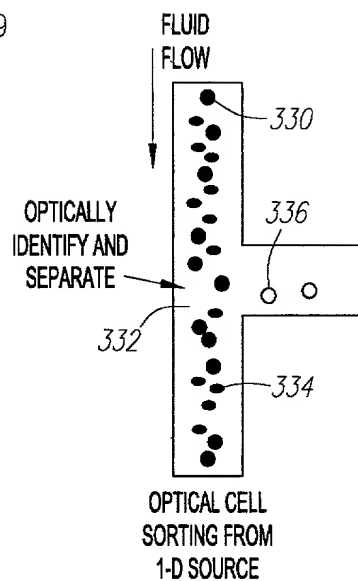


FIG. 14B

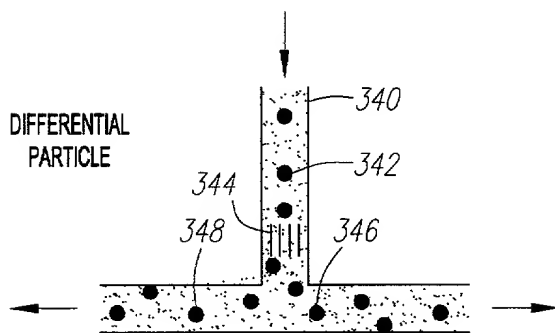


FIG. 15

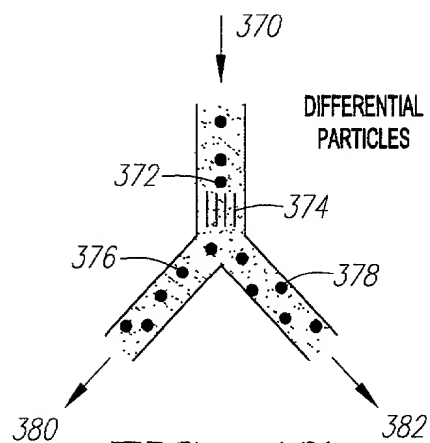


FIG. 17

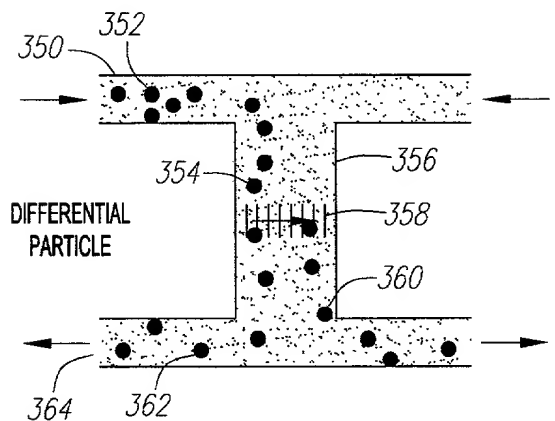


FIG. 16

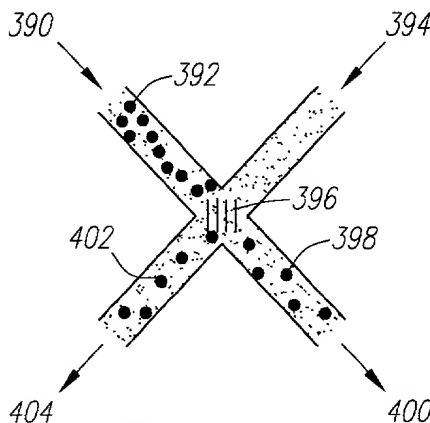


FIG. 18

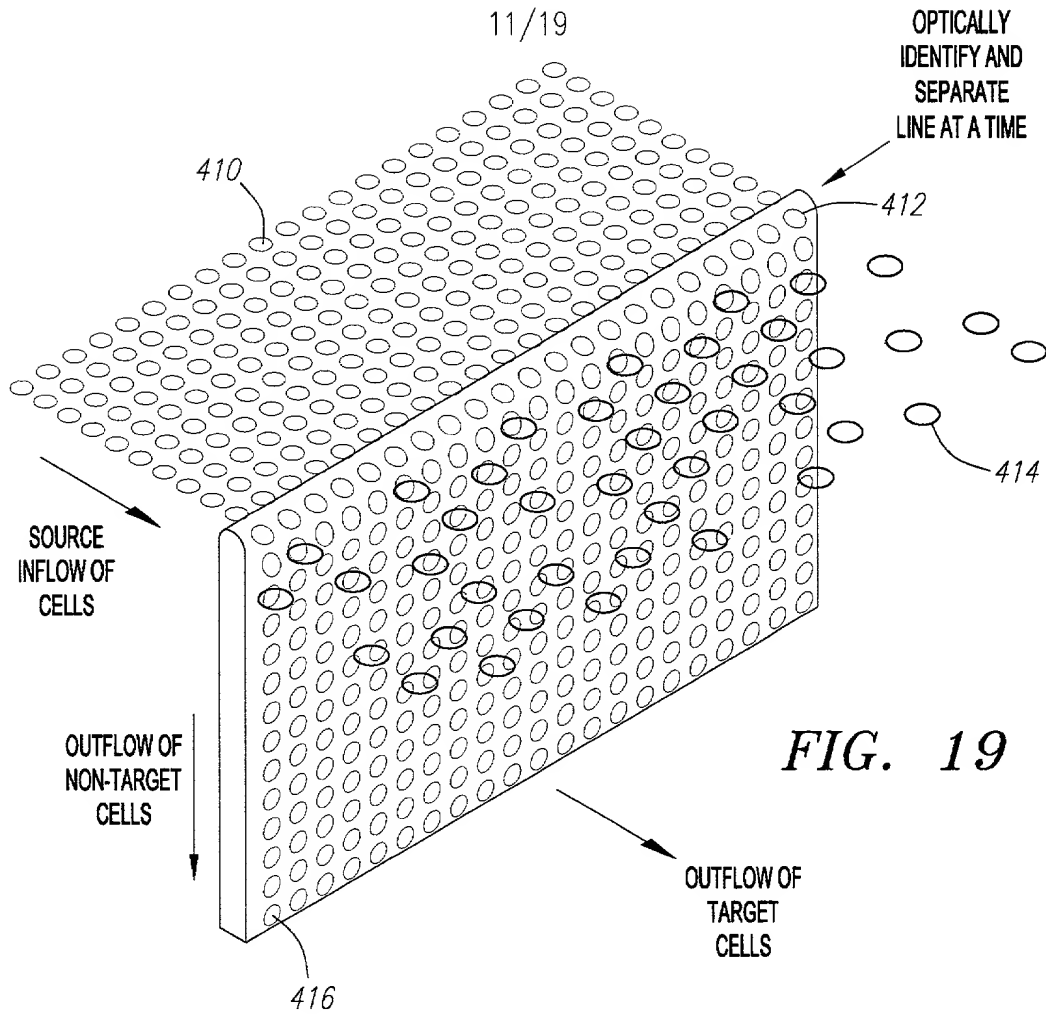


FIG. 19

FIG. 20

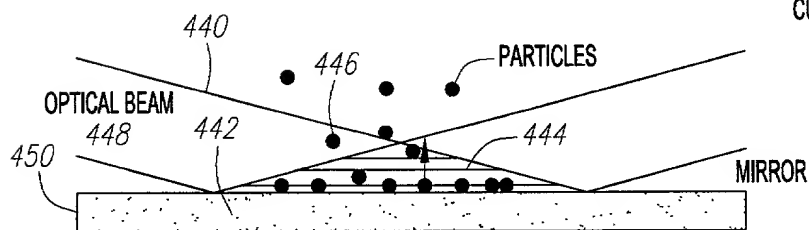
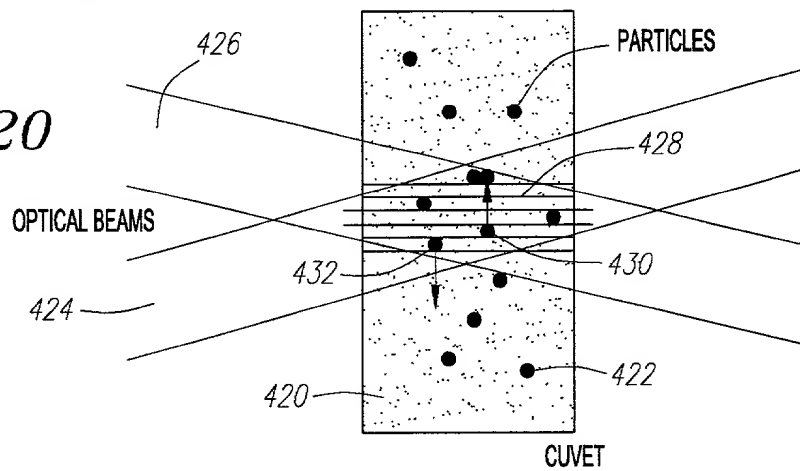
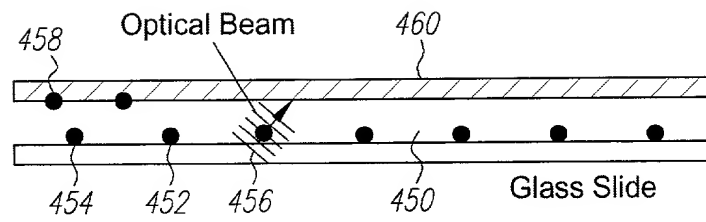


FIG. 21



*FIG. 22*

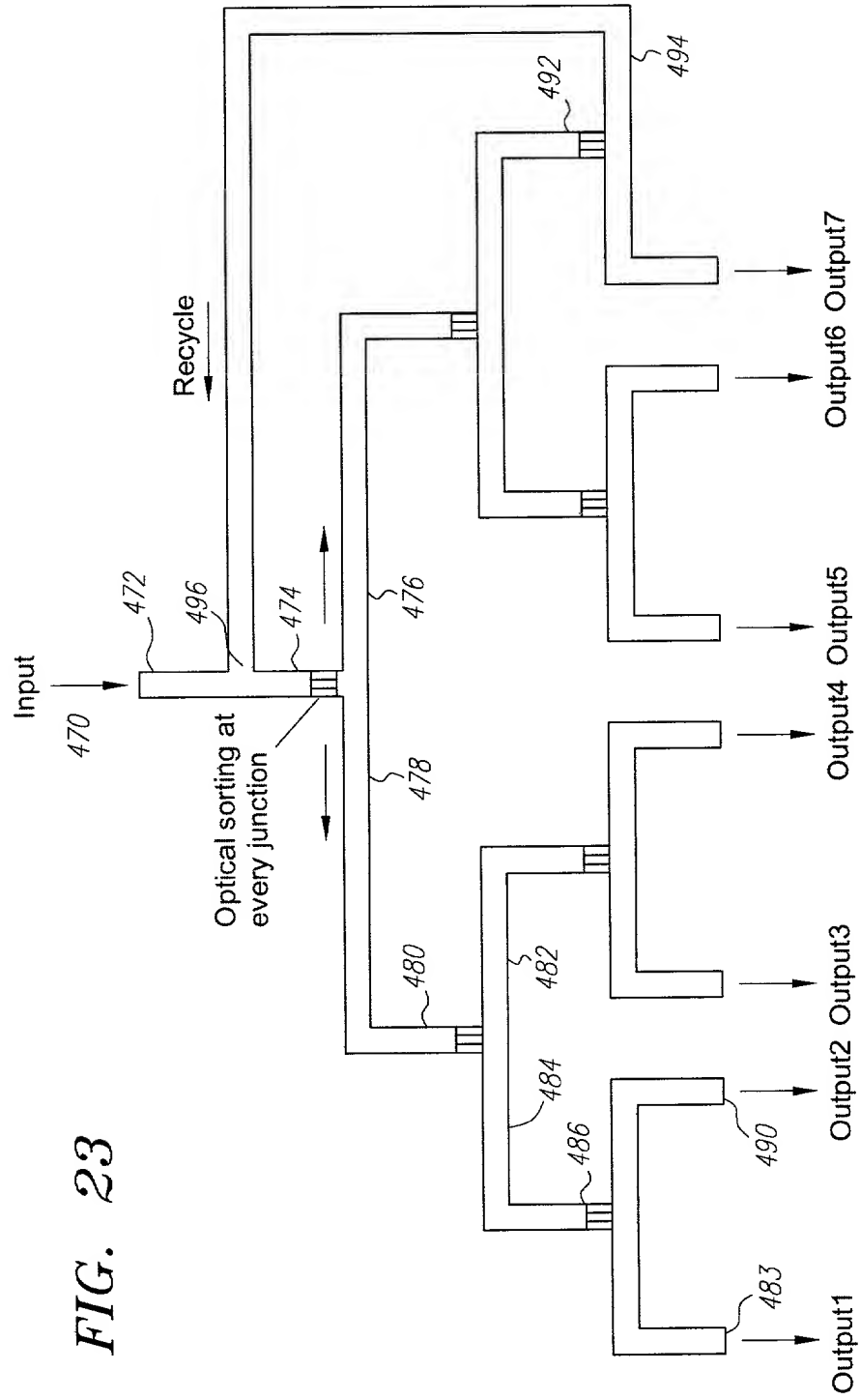
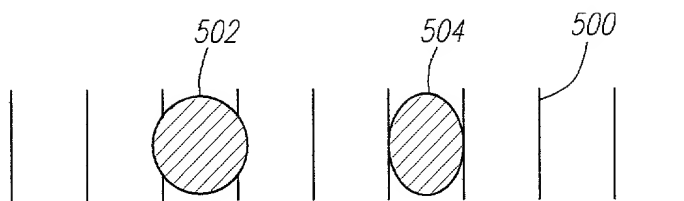
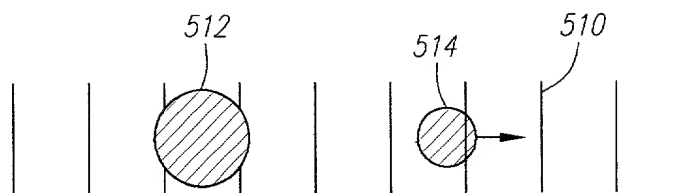


FIG. 23



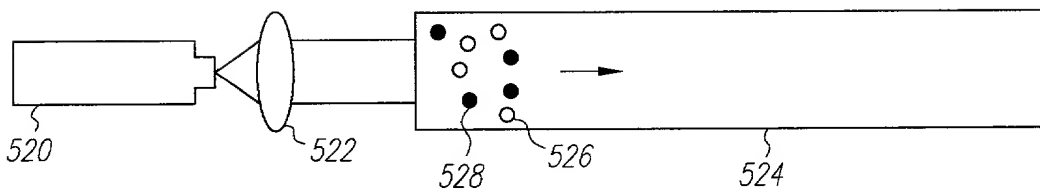
**FIG. 24**



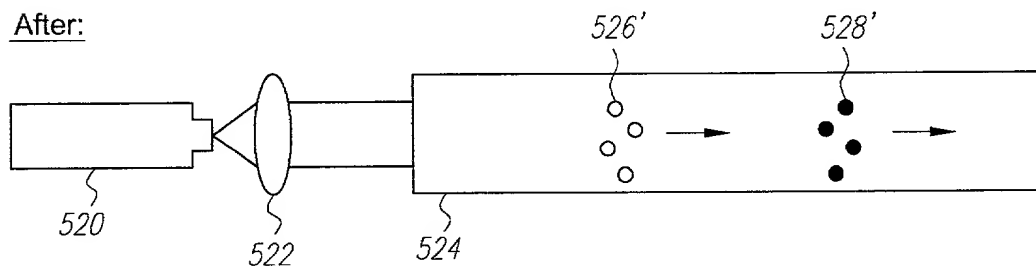
**FIG. 25**

Before:

SCATTER FORCE SEPARATION



After:



**FIG. 26**

FIG. 27A

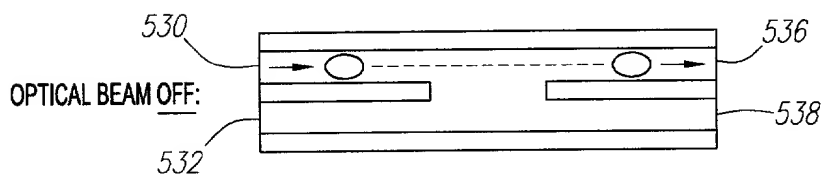
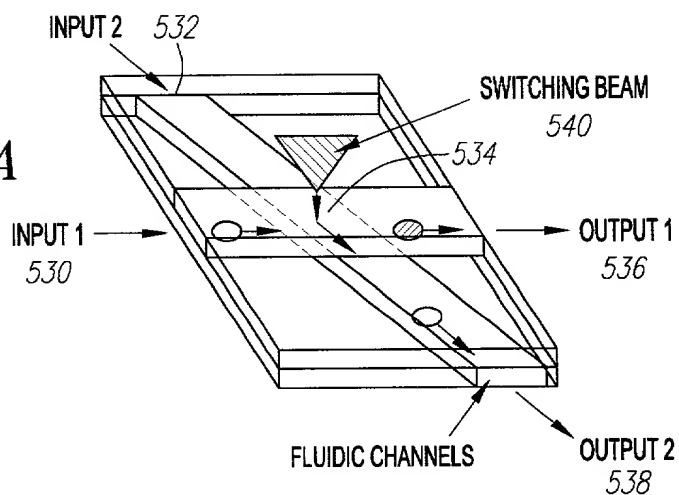


FIG. 27B

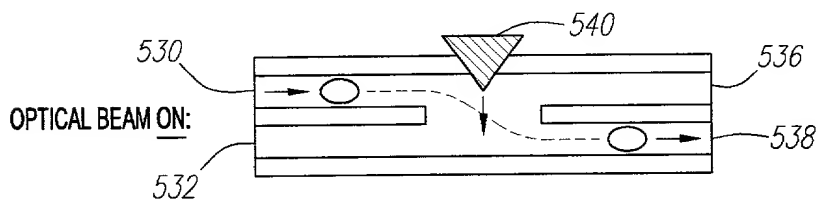


FIG. 27C

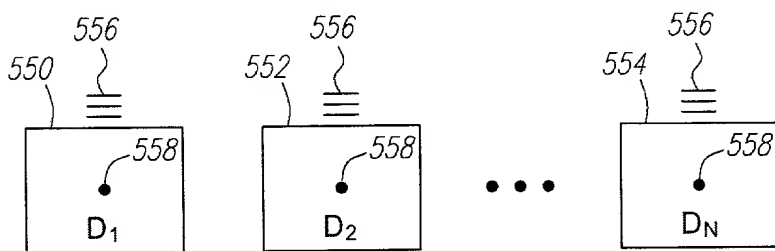
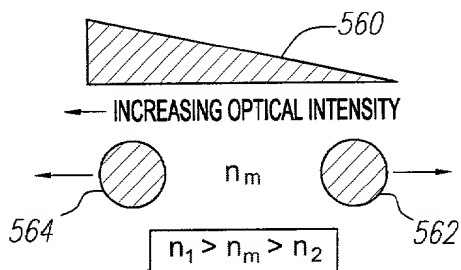


FIG. 28

FIG. 29



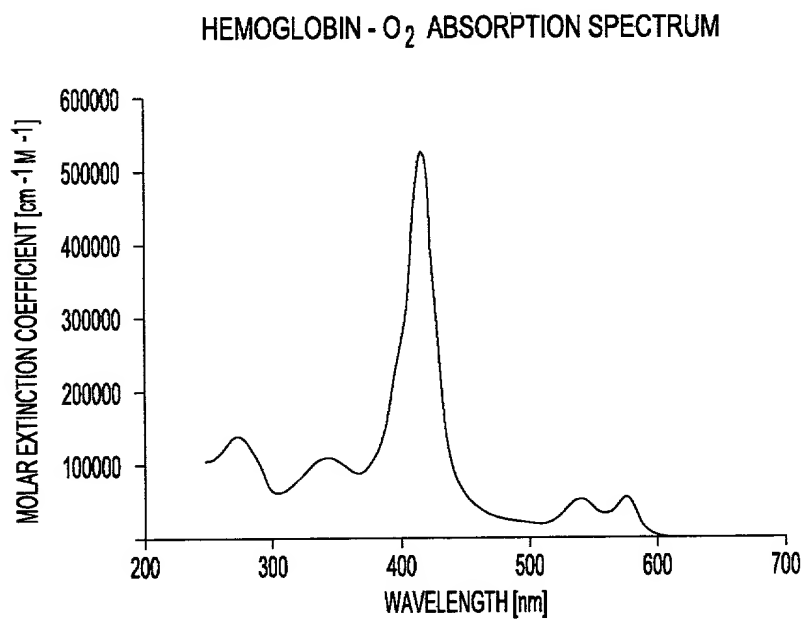
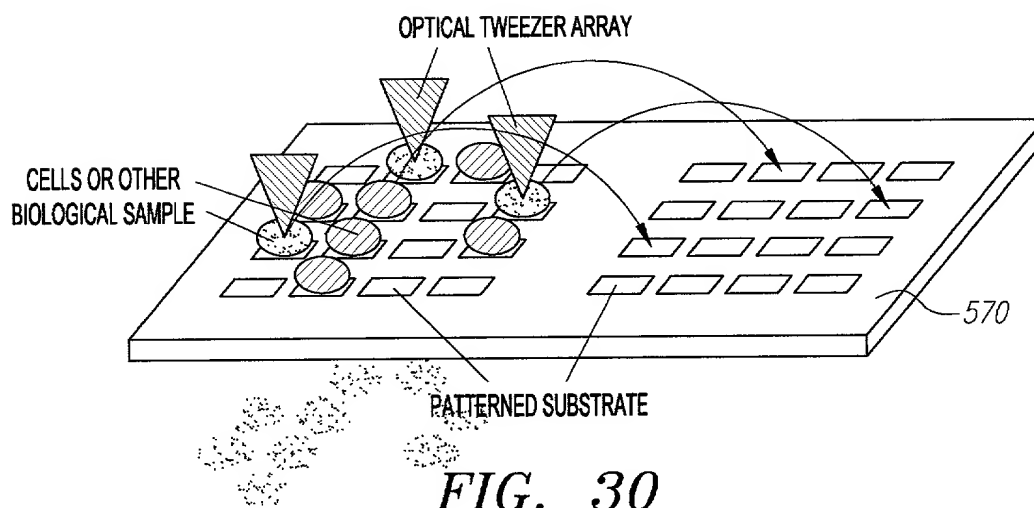


FIG. 31



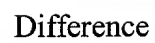
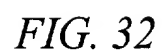


FIG. 34

DISTRIBUTION OF ESCAPE VELOCITIES  
READING TAKEN IN PBS/1% BSA BUFFER  
RAIN-X COATED SLIDE/CYTOP COATED COVERSIP

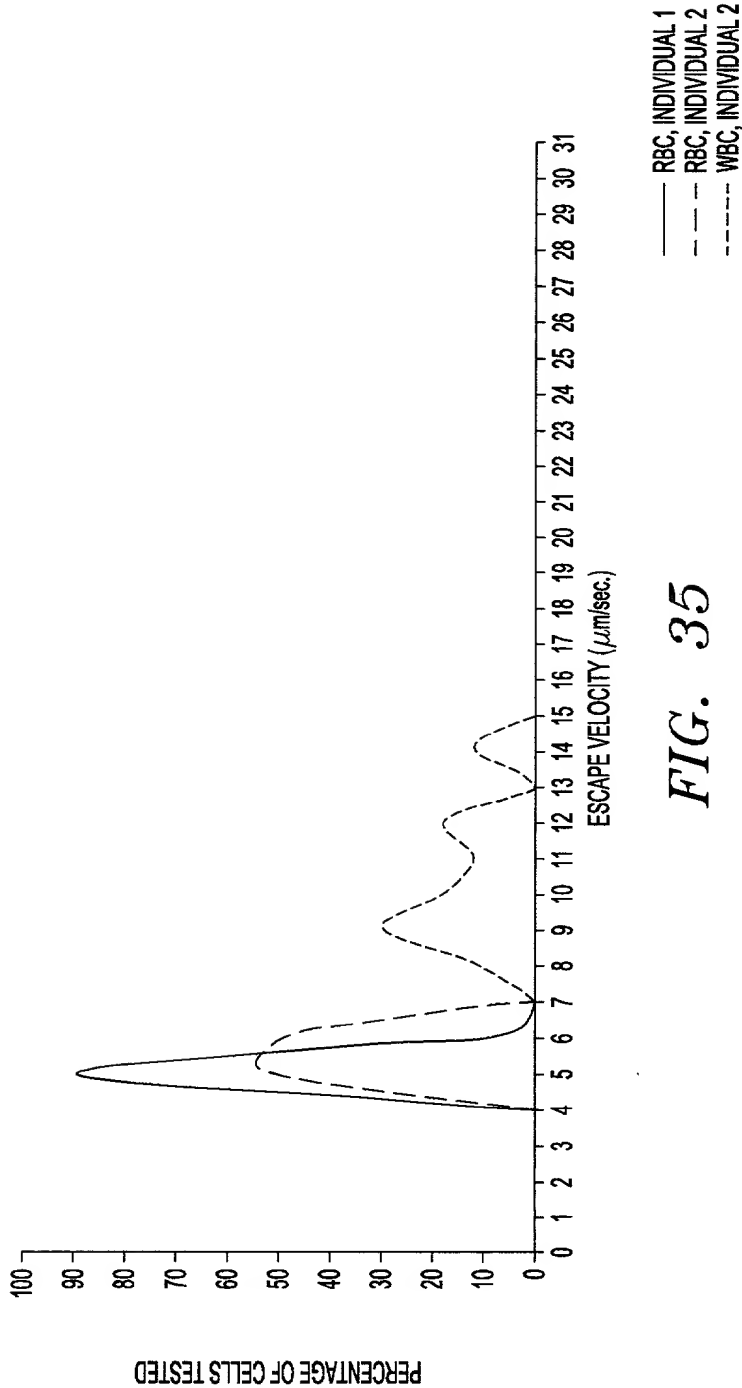
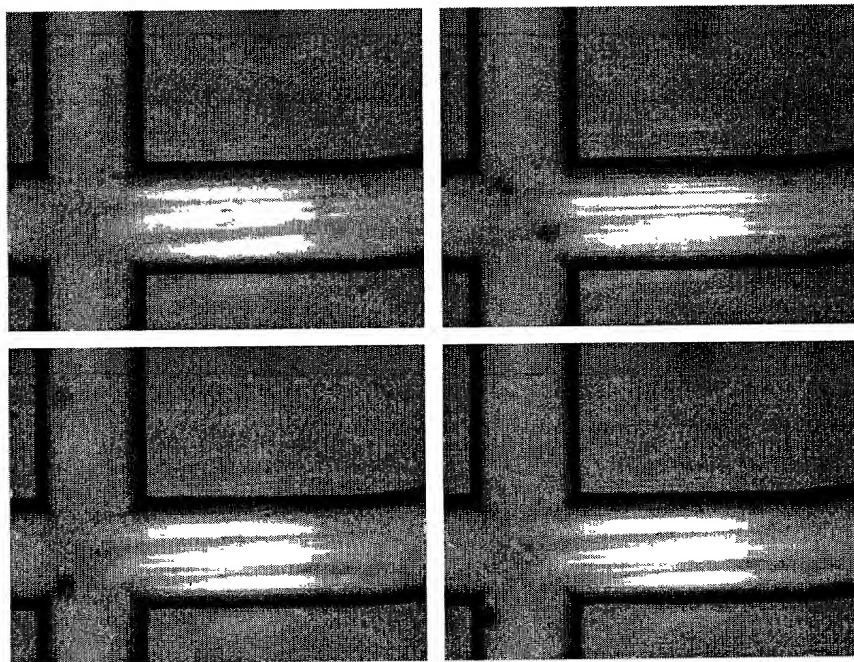


FIG. 35



*FIG. 36*